David Garrett

STATE OF MISSOURI

Bob Holden, Governor • Stephen M. Mahfood, Director

DEPARTMENT OF NATURAL RESOURCES

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March 24, 2003

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CERTIFIED MAIL - 7000 1670 0000 9989 1380
RETURN RECEIPT REQUESTED

Mr. Thomas S. Sanicola
Environmental Engineer
Modine Manufacturing Company
1500 DeKoven Avenue
Racine, WI 53403-2552

RE: Removal Action Work Plan; Modine Manufacturing Company; Camdenton, Missouri; EPA ID# MOD062439351

Dear Mr. Sanicola:

The Missouri Department of Natural Resources' Hazardous Waste Program (HWP) and the United States Environmental Protection Agency (EPA) has reviewed the document entitled *Work Plan Addendum 3*, Corrective Action, Indoor Air Quality Assessment, dated December 23, 2002, for Modine Manufacturing Company, Camdenton, Missouri. The department hereby approves the subject work plan provided that Modine revises and resubmits the work plan to address the following comments.

- As recommended by the EPA' s "*Subsurface Vapor Intrusion Guidance*," dated November 2002, background sources to indoor air contamination should be considered in the investigation. Modine should identify any sources of volatile organic compounds (VOCs) not related to subsurface contamination through an inspection of the plant. In addition, ambient outdoor air samples should be collected in conjunction with any indoor air samples.

- Factors, such as indoor and outdoor pressure differences, temperature, depth to groundwater, air exchange rate, etc., may influence subsurface vapor intrusion and indoor air contamination. Ideally air sampling should be conducted to encompass periods of high groundwater, cold weather with the heating system operating with minimal air exchange and wet weather when the pressure and temperature gradients between inside of the building and the outdoor environment are maximized representing "worse-case" conditions

(Massachusetts Department of Environmental Protection, "Indoor Air Sampling and Evaluation Guide," April 2002). Modine has proposed to conduct a one-time 24-hours sampling event during early March. Therefore, depending on sampling results it may be necessary to conduct more than one sampling event.

The New York State Department of Health (NYSDOH) and New York State Department of Environmental Conservation (NYSDEC) have developed a "vapor intrusion decision matrix" for determination of impact to indoor air quality. In addition to EPA's draft Vapor Intrusion Guidance Document, Modine should consider the NYSDOH/NYSDOC "decision matrix" when making a determination as to whether further sampling or mitigation is necessary.

- Modine has selected trichloroethene, cis-1,2-dichloroethene and Vinyl Chloride as constituents of concern (COCs) for air quality assessment. These three chemicals were selected as COCs for air sampling as they have been detected in groundwater at the site and were drivers for soil removal at the site. During soil excavation activities at the site trans-1,2-Dichloroethene, 1,1-Dichloroethene, Tetrachloroethene, and Napthalene were detected at low levels in soil samples. Confirmatory soil samples indicate that constituents in soil west of the manufacturing building were excavated to acceptable levels.

  Historical sampling at the former monorail vapor degreaser location (HA-5) indicated elevated levels of Chloroethane, 1,1-Dichloroethene, Methylene Chloride, 1,1-Dichloroethane, 2,2-Dichloroproane, 1,1,1-Trichloroethane, and TCE. The amount of contaminated soil and/or groundwater beneath the manufacturing building is unknown. Any constituents that have the potential to cause indoor air vapors from the soil and/or groundwater beneath the manufacturing building should be included as COCs for air sampling.

  Based on historical soil and groundwater sampling and Tables 1 and 2b in EPA's Vapor Intrusion Guidance Document, the department recommends the following constituents be included as COCs for indoor air sampling at the facility:

  Trichloroethene (TCE)
  Vinyl Chloride
  cis-1,2-Dichloroethene (cis-1,2-DCE)
  trans-1,2,-Dichloroethene (trans-1,2-DCE)
  1,1-Dichloroethene (1,1-DCE)
  1,1,-Dichloroethane (1,1-DCA)
  1,1,1-Trichloroethane (1,1,1-TCA)
  Tetrachloroethene (PCE)
  Methylene Chloride
  2,2-Dichloropropane
  Napthalene

- Modine has proposed calculated target industrial indoor air concentrations based on a $1x10^{-5}$ risk level for carcinogenic chemicals and a hazard quotient of 1 for non-carcinogenic

chemicals. Modine should compare analytical results to both industrial and residential target concentrations. Residential levels (and the test method that supports them and lower detection limits) are valuable to do a complete characterization of the situation beneath the former manufacturing building. Therefore, precise data will be available should slope factors change, additivity of risk, etc. thus reducing the potential for duplicative sampling.

If you have any questions regarding this letter, feel free to contact Christine Kump-Mitchell, P.E., of my staff at the Missouri Department of Natural Resources, 7545 S. Lindbergh, Suite 210, St. Louis, MO 63125, or by phone at (314) 416-2960.

Sincerely,

HAZARDOUS WASTE PROGRAM

Robert K. Morrison, P.E.
Chief, Permits Section

RKM:ckm

c: Mr. David Garrett, U.S. EPA Region VII
Mr. Daniel Price, CH2MHill